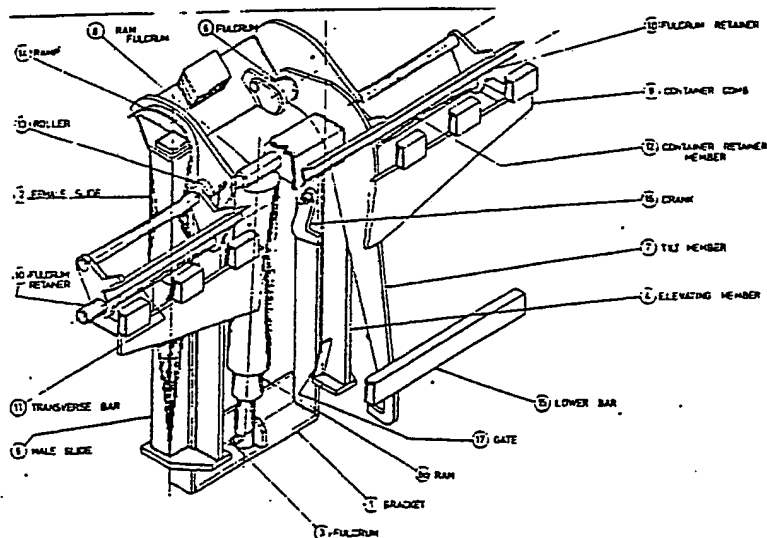




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<p>(21) International Application Number: PCT/AU82/00035 (22) International Filing Date: 18 March 1982 (18.03.82) (71) Applicant (for all designated States except US): WAS- TEMOVERS PTY. LIMITED [AU/AU]; 40-46 Georgetown Road, Georgetown, NSW 2298 (AU). (72) Inventors; and (75) Inventors/Applicants (for US only) : EGGERS, Henry [AU/AU]; 4 Kelly Street, Henley, NSW 2111 (AU). STICPEWICH, John, Warren [AU/AU]; 10 Beach- worth Road, Pimble, NSW 2073 (AU). (81) Designated States: AT (European patent), BE (Euro- pean patent), CH (European patent), DE (European patent), FR (European patent), GB, GB (European patent), JP, LU (European patent), NL (European pa- tent), NO, SE (European patent), US.</p>		<p>Published With international search report.</p>

(54) Title: MULTIPURPOSE CONTAINER HANDLING DEVICE



(57) Abstract

A container lifting and tipping device for either vehicular or stationary use comprising a bracket (1) mounted to a frame or chassis of a vehicle, compactor, or hopper, an elevating member (4) attached by slides (2) and (5) to bracket (1) tilting member (7) fulcrumed (6) to the elevating member (4) by one end and adjacent to the top of the elevating member (4) a container retaining member (12) automatically activated by means of a roller bearing (13) and ramp (14). Elevation and tilting is controlled and actuated by means of either a hydraulic or pneumatic cylinder (8a).

MULTIPURPOSE CONTAINER HANDLING DEVICE

This invention relates to the elevation and tilting of various size plastic and steel containers to effect the emptying of the load therein into a vehicle or stationary receival hopper.

The invention is concerned mainly with the handling of garbage, waste or refuse in domestic, commercial and industrial areas. This first requires the workman to wheel or otherwise place the container(s) to a suitable position where at the workman then operates a control system to enable the invention to elevate the container(s) whilst coincidentally causing the retention of the container(s) to the device to avoid the container leaving the device and falling into the vehicle or stationary receival hopper. The workman then reverses the cycle to have the container(s) untilted and lowered to the ground, coincidentally being released by the retention device.

The invention is not confined to use in the garbage industry as just recounted but it is primarily intended for use in this connection; and so by way of example it will be described herein mainly in terms thereof.

Garbage collection means of the type under consideration are known and in use; the means herein detailed are, however more efficient, more speedy, less expensive and less damaging to the lifted container and, moreover, can accept a greater range of containers than others.

This invention provides container pickup and emptying means for either vehicular or stationary use comprising:

- (a) A bracket mounted to the frame or chassis of the compactor, hopper or vehicle,
- (b) An elevating member attached by slides to the bracket,
- (c) A tilting member fulcrumed to the elevating member by one end and adjacent to the top of said elevating member and containing a container lifting comb,

retaining member (12) onto the container lip during the tilt motion thus avoiding the container being lost. The ramp system(s) (14) also acts on roller(s) (13) to allow the container retaining member (12) to retract from the container lip and allow the container freedom to leave the comb (9) when the tilting member (7) is lowered.

Elevation and tilting is controlled and acted on by a hydraulic or pneumatic cylinder of conventional means with single or multistage operation.

When a container operation is made the workman offers up the
10 container with the lip adjacent to the comb (9), operates the conventional hydraulic control system at which the elevating member (4) rises and the comb (9) engages under the container lip, lifting the container which swings inward until coming against the lower bar (15). Further upward movement of the elevating member (4) lifts the container vertically until the member (4) reaches the end of the travel of slides (3) and (5) whereon cranks (15) engage on gate (16) to retain the slides in arm extended position. The continuing ram action is converted to a rotary motion on the tilting member (7) by the fulcrums (6) and (8). During the tilting operation roller(s) (13) engage against ramp(s) (14) and act upon the container retaining member (12) causing the member (14) to
20 depress relative to the tilting member (7) and this to retain the container.

When the cargo leaves the container the hydraulic or pneumatic circuit is reversed leading to the tilting member (7) revolving to the original vertical position the cranks (15) engaged to stop the slides (3) and (5) from moving and during this operation roller(s) (13) are forced by ramp(s) (14) to cause the container retaining member (12) to elevate relative to the tilting member (7) and hence release the container



- 5 -

The claims defining this invention are as follows:

Claim 1: In a device for the elevation and tipping of containers, a slide system to allow for varying container heights.

Claim 2: In a device for the elevation and tipping of containers a guide and ramp system to enable retention of the container when in a tipped position.

Claim 3: In a device for the elevation and tipping of containers, a crank system to prohibit lowering of the container before the container is untipped.



INTERNATIONAL SEARCH REPORT

International Application No PCT/AU82/00035

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) ¹		
According to International Patent Classification (IPC) or to both National Classification and IPC		
B65G 65/23, B65F 3/02, 3/04, 3/08, B65F 9/00, 9/04		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁴		
Classification System	Classification Symbols	
IPC US CL	B65G 65/00, 65/23, B65F 3/02, 3/04, 3/08, B66F 9/00, 9/04 414/422	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁵		
AU:IPC as above Australian classification 86.55, 86.56, 59.95.		
III. DOCUMENTS CONSIDERED TO BE RELEVANT ¹⁴		
Category ⁶	Citation of Document, ¹⁵ with indication, where appropriate, of the relevant passages ¹⁷	Relevant to Claim No. ¹⁸
X	AU,A, 52320/79 (ZOLLER-KIPPER G.M.B.H) 8 May 1980 (08.05.80)	1-3
X	AU,B, 35636/78 (521074) (WORTHINGTON) 29 November 1979 (29.11.79)	1-3
X	GB,A, 1545555 (HESTAIR DENNIS LIMITED) 10 May 1979 (10.05.79)	1-3
X	GB,A, 998405 (DENNIS BROTHERS LIMITED) 14 July 1965 (14.07.65)	1-3
X,Y	GB,A, 899422 (ALLAN BRACEWELL (HYDRAULICS) LIMITED) 20 June 1962 (20.06.62)	1-3
X	US,A, 3881616 (BLAKELEY et al) 6 May 1975 (06.05.75)	1-3
X	US,A, 3417888 (NAAB) 24 December 1968 (24.12.68)	1-3
X	US,A, 2860795 (ZOLLER) 18 November 1958 (18.11.58) (& DE,B,1017979)	1-3
<p>¹⁶ Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"Z" document member of the same patent family</p>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search ¹	Date of Mailing of this International Search Report ¹	
4 June 1982 (04.06.82)	(09-06-82) 09 June 1982	
International Searching Authority ¹	Signature of Authorized Officer ¹⁰	
Australian Patent Office	D.B. CUPITT <i>(Signature)</i>	